

UNITED STATES PATENT OFFICE.

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ROLLER-HOLDER FOR PHOTOGRAPHIC FILMS.

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Application filed August 8, 1884. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. WALKER and GEORGE EASTMAN, of Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Roller-Holders for Photographic Films, of which the following is a specification, reference being had to the accompanying drawings.

Our present invention relates to an improved apparatus for exposing sensitive photographic films in the camera, which apparatus is fully described in the accompanying specification and the novel features thereof specified in the claims annexed.

Our improved roller-holder is represented in the accompanying drawings, in which Figure 1 is a plan view. Fig. 2 represents the interior of the holder as seen from above, the side of the inclosing casing being removed. Fig. 3 is a front view showing the interior of the roller-holder, the shutter and platform or support for the film being removed. Fig. 4 is an end view, one of the ends or sides of the casing being removed. Fig. 5 is a section on the line *x x*, Figs. 2 and 3, showing the construction of the friction device of the spool. Fig. 6 is a section on the line *y y*, Fig. 3. Fig. 7 is an end view of the reel, showing the device for attaching the end of the film thereto. Fig. 8 is a side view of the same. Fig. 9 is a transverse section through the reel. Fig. 10 is a transverse section through the spool. Fig. 11 is a longitudinal section, and Fig. 12 a transverse section, of a spool wound with film and inclosed in a light-tight case ready for market. Fig. 13 is a sectional view of one end of reel.

Our improved apparatus for exposing flexible films in the camera consists, essentially, of a suitable casing, A A, provided at its front with a rabbet, *a*, by which the holder may be attached to any ordinary camera light-tight, and with an exposing-shutter, B, of the usual type, which casing incloses two rollers, from one to the other of which the film is wound as it is exposed, a suitable frame-work for supporting the rollers in their proper positions, and the other parts of the apparatus.

Our invention also comprises guide-rollers,

over which the film passes, alarm and performing devices, and mechanism for maintaining a sufficient tension of the film.

C represents the roller on which the flexible film is wound before exposure, and which, to distinguish it, we call the "spool."

Our invention also comprises a light-tight case, in which the spools C, filled with film wound thereon, may be delivered to the trade.

D is a roller on which the film is wound after exposure by means of the handle or key E, Fig. 2, which roller we call the "reel." The spool C and the reel D are supported parallel to each other in the frames F F, which are preferably attached to the back G, Fig. 2, which is made removable, so that the whole apparatus may be taken out of the casing for the purpose of removing any exposed films or of introducing a fresh full spool. The frames F F are preferably made of metal in any suitable form adapted to sustain the spool and reel, the platform or support I, over which the film travels, and the guide-rollers J K. The frames are connected together in any suitable way—as, for instance, by the rods H H, which may be, as shown in the drawings, tubes attached at either end to the frames by the screws *b b*.

As the spool C is designed to be used only once, we prefer to make it of wood, and to provide it at one end with a single central hole which receives the stud or pin *c*, Fig. 6, while at the other end the spool contains two holes, into which the pins *d d*, attached to the brake or friction device, are inserted. The body of the pin *c* is threaded and screws into a hole in the frame, being provided with the milled head L, Fig. 6. Provision is thus made for removing an empty spool and replacing it by a spool full of unexposed film.

The construction of the brake or friction device on the spool will be readily understood from the sectional view, Fig. 5.

N is a collar carrying the pins *d d*, which revolves in a suitable recess or bearing in the frame, being provided on the inside of the frame with a flange, *f*. A hub projecting from the collar outside of the frame is threaded, and has the clamp-nut O fitted thereon. Be-